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F2K K2A2

(56) Documents Cited
GB 1509287 A WO 98/25036 A1 US 5579662 A
US 4339213 A

(58) Field of Search
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Online: WPI, EPODOC, JAPIO

(54) Abstract Title
Anchoring an elongate member

(57) An anchoring device 1 for anchoring an elongate member to a flat plate 8 provided with a slot 6 leading to one edge 10 thereof, includes a sleeve 2 for fitting over the member and having a groove 4 slidable along the slot 6. A spring-loaded ring 14 is movable along the sleeve 2 to allow accommodation of the slotted plate within the groove 4 and is biased to interlock with a projection 12 on the plate 8.

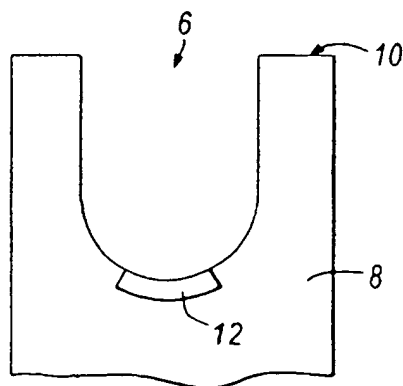


Fig. Ia

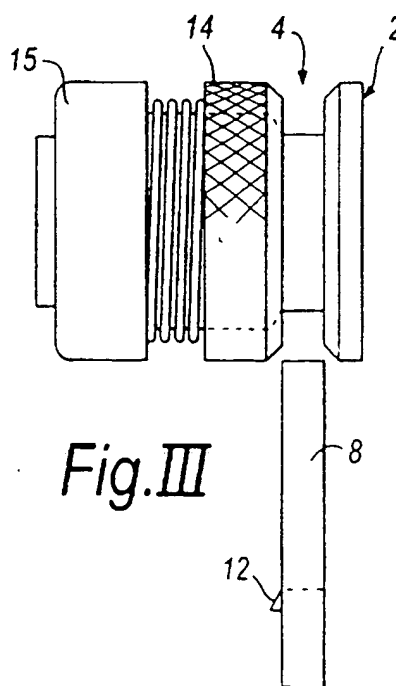


Fig. III

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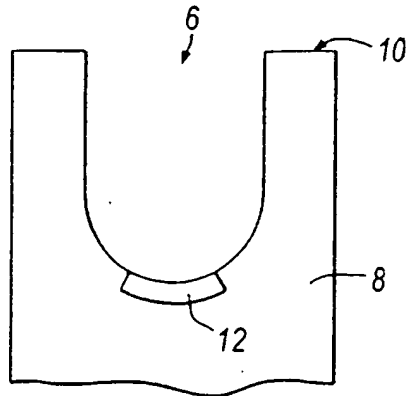


Fig. Ia

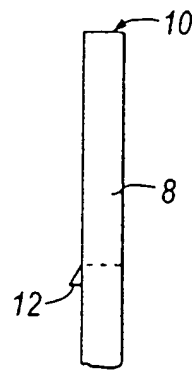


Fig. Ib

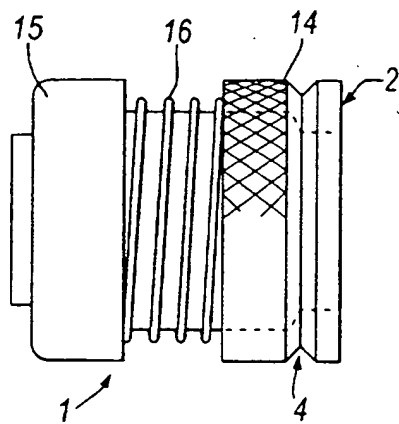


Fig. II

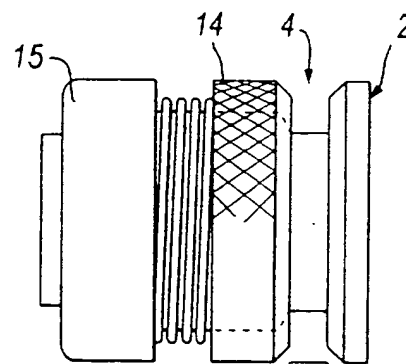


Fig. III

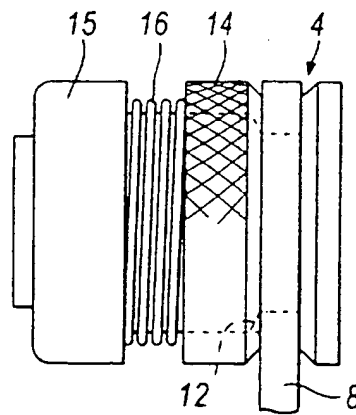
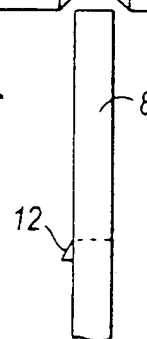


Fig. IV



Means for Anchoring an Elongate Member

This invention relates to means for anchoring an elongate member to another member. The invention is made with particular reference to the anchoring of Bowden-type cables to fixed parts of the chassis or bodywork of an automobile, and the invention will be described in that context in this specification. It will, however, be appreciated that such an anchoring member can be used for anchoring many other elongate members, and in many other circumstances.

As is well known, a Bowden-type cable is a device for translating a push/pull movement at one location to a push/pull movement (in the same or any different direction) at a different location, often for control purposes, and such a cable comprises a flexible conduit in which a control wire is slidable to perform the desired function. In order for the relative movement of the control wire and the conduit to take place in a controlled manner for the reliable operation of, for example, a clutch or gearbox mechanism or throttle of a motor vehicle, it is necessary that each end of the conduit should be anchored, for example to the body of the vehicle. In particular, the practice has developed of anchoring an end of the conduit to an opening in a bracket or bulkhead across which the control cable passes.

In a particular arrangement which is known for this purpose, this arrangement being that with which the present invention is particularly concerned, the bracket or bulkhead is provided with a generally circular hole near one edge, the hole being connected to that edge by a slot whose width is the diameter of the circular hole. That edge of a bulkhead may be a peripheral edge, or it may be an edge of another, larger hole formed within the bulkhead.

An anchoring sleeve or end fitting for the Bowden-type cable may comprise a neck of a diameter which will pass into the slot, in a direction which is parallel to a plane of the bracket or bulkhead and perpendicular to the axis of the cable, and a collar which may be slid or screwed axially of the anchor fitting to abut the bulkhead adjacent the slot and thus resist withdrawal of the anchor from the slot and also axial movement of the anchor relative to that slot.

In industry in general, and in particular in the automotive industry, there is a never ending search for the simplification or speeding up of the assembly process, and as one step in this search, there has arisen the proposal as set forth in EP-A-0 703 395 (Acco La Teledynamique SA) to provide a helically tensioned spring for the automatic screwing of such a collar. Such construction is, however, somewhat complicated, and it requires accurate centring within the slot before reliable anchoring can take place.

It is an object of this invention to provide an anchoring device in which a proper and reliable anchoring can be achieved easily and quickly.

According to the present invention, there is provided means which is suitable for anchoring an elongate member to a flat member having a slot leading to an edge thereof, which anchoring means comprises a sleeve which is fixable coaxially around said elongate member and which is formed with a peripheral groove whose axial length is sufficient to accommodate the thickness of such flat member at said slot, such groove defining a neck which is a close fit into said slot, and at least one ring member carried by the sleeve which is axially movable along said sleeve from a position in which it is spaced from and clear of said groove into a position in which it is adjacent said groove, in which position said ring forms an interlock with a projection on said flat member such as to prevent and resist withdrawal of the anchoring sleeve from the slot in the flat member.

Such an anchoring sleeve can be secured to a said flat member constituted by a portion of a bracket or bulkhead extremely easily and quickly to form a reliable anchorage for an elongate member surrounded by the sleeve.

A preferred embodiment of the invention will now be described by way of example only, with reference to the accompanying diagrammatic drawing in which :-

Figure I shows a flat plate or bulkhead member having a slot leading to an edge of the plate and a projection or latch formed adjacent the base of the slot.

Figure II shows a sleeve which is to be fitted over an elongate member such as a Bowden type control cable, the sleeve having a groove which is slidable along the slot in the flat plate.

Figure III shows a ring which is movable along the sleeve against spring pressure to a position where it is spaced from and clear of the slot to allow the sleeve to be engaged in the slot in the flat plate member.

Figure IV shows the ring moved along the sleeve to a position abutting the plate member and interlocking with the projection thereon to prevent withdrawal of the sleeve from the slot.

In this condition the sleeve is firmly anchored to the flat plate member; and hence any control cable passing through the sleeve will be firmly anchored in the bulkhead or the like.

The sleeve can be disengaged from the slot after first sliding the ring to the left of the drawing so that it no longer interlocks with the projecting latch on the flat plate.

CLAIMS

- 5 1. An anchoring device for anchoring an elongate member to a flat member having a slot leading to an edge thereof, the anchoring device comprising a sleeve which is fixable coaxially around said elongate member and which is formed with a peripheral groove whose axial length is sufficient to accommodate the thickness of such flat member
10 at said slot, such groove defining a neck which is a close fit into said slot, and at least one ring member carried by the sleeve which is axially movable along said sleeve from a first position in which it is spaced from and clear of said groove into a second position in which it is adjacent said groove, in which second position said ring forms an
15 interlock with a projection on said flat member such as to prevent and resist withdrawal of the anchoring sleeve from the slot in the flat member.
2. A device according to Claim 1 in which the at least one ring member
20 is spring-loaded towards the second position.
3. A device according to Claim 2 in which the spring-loading is effected by an open coil compression spring.
- 25 4. A device according to any one of the preceding claims in which the projection on the flat member is formed of a lip protruding from the surface of the member adjacent the base of the slot and engageable with the ring member.

5. An anchoring device according to any one of the preceding claims in combination with a Bowden-type cable.
6. An anchoring device for anchoring an elongate member to a flat member having a slot leading to an edge thereof substantially as hereinbefore described with reference to the accompanying drawings.



Application No: GB 9901544.8
Claims searched: 1 to 6

Examiner: Colin Thompson
Date of search: 22 May 2000

Patents Act 1977 Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK CI (Ed.R): F2K (K2A2)

Int CI (Ed.7): F165C 1/26

Other: Online: WPI, EPODOC, JAPIO

Documents considered to be relevant:

| Category | Identity of document and relevant passage | Relevant to claims |
|----------|---|--------------------|
| X | GB 1509287 A (Automobile Citroën SA) See whole document | 1-5 |
| X | WO 98/25036 A1 (Fico Cables SA) See whole document | 1,5 |
| X | US 5579662 A (Reasoner) See whole document | 1,2,4,5 |
| X | US 4339213 A (Gilmore) See whole document | 1,5 |

X Document indicating lack of novelty or inventive step
Y Document indicating lack of inventive step if combined with one or more other documents of same category.

& Member of the same patent family

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P Document published on or after the declared priority date but before the filing date of this invention.

E Patent document published on or after, but with priority date earlier than, the filing date of this application.